

SQRCD: Building Sustainable and Customer Centric DFIS for the Industry 5.0 Era

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Abstract—Artificial Intelligence (AI) is considered a big turning point for the financial industry. Introducing Artificial General Intelligence (AGI) enhances the capability of all the areas where AI shows its power. The development of AGI is directly proportional to the need for more advanced automation by enhancing the features quick responsive, customization/personalization and the refined decision making capabilities in different industries. The current study aims to discuss the respondent's views on the adoption of an AGI-enabled Sustainability, Quick responsiveness, Risk management, Customer-centric, and Data privacy (SQRCD) system in Digital Financial Inclusion System (DFIS). A total of 630 responses were collected from the respondents belonging to 90 different finance institutes. The result shows that SQRCD had a significant positive relationship with the attitude to adopt an AGI enabled-SQRCD system. The three cultural dimensions of Hofstede's theory power distance index, collectivism-individualism, and uncertainty acceptance are also taken as moderators. The effect of moderators is seen in the different relationships. The study develops a direct hypothesis to analyze the adoption of a new financial system which includes the mentioned factors. The result of the study is beneficial in the development of a renewed financial system where the mentioned parameters are essential for Industry 5.0.

Keywords—Artificial General Intelligence (AGI); Digital Financial Inclusion System (DFIS); industry 5.0; customer-centric; sustainability

I. INTRODUCTION

AI is considered as a big turning point for the financial industry. It plays an important role in process automation, consumer service and risk management [1]. Introducing AGI enhances the capability of all the area where AI is showing its power. AGI is the domain of AI which can perform tasks as human do and can learn and solve the problem in various domains. With the new upcoming technologies like big data, machine learning, cloud computing scientists are able to form many newer AI algorithms which are able to analyze the large amount of data and can predict and learn human intelligence [2]. The development of AGI is directly proportional to the need of more advanced automation by enhancing the feature quick responsive, customization/personalization and the refine decision making capabilities in different industries. Financial inclusion is the practice of making less expensive financial services and products in reach to both consumers and businesses is termed as financial inclusion. It seeks to guarantee that everyone, especially those with low incomes or disadvantages, get financial services in reduced cost. The use

of digital technologies to offer financial services to under privileged people is known as DFIS. For people who are currently unbanked or financially marginalized, DFIS seeks to make financial services sustainable, reasonable and accessible. Among the many advantages of DFIS are reduced expenses, a decreased chance of financial crimes, and economic empowerment. A new stage of industrial development called Industry 5.0 highlights collaboration and cooperation between intelligent machines and people [3]. A civilization where digital technology is pervasive and permeates every part of daily life is known as a digital society. It is distinguished by the use of information and communication technology (ICT) for communication, teaching, purchasing, and selling, among other purposes. The paper is organized as follows. The literature review is covered in Section II, the proposed methodology is presented in Section III, the results and discussion are covered in Section IV, and finally, the conclusion is presented in Section V.

II. LITERATURE REVIEW

AI algorithm analyse a large amount of data to identify the pattern by which a fraudulent activity can be predict [4]. AI tools are playing an important role in the area of customer service to assist customer in various field. Personalization is one of the features of AGI. Advance AI algorithms are able to find the patterns and can predict the behaviour of customer and according to that can suggest service that suits to a particular customer. This is the way to fulfil everyone's need according to the choice and it will enhance the financial planning. Automation is another feature of AGI [5]. AGI can examine the large amount of data and enable the financial institution to take quick decisions about the information, service, product, investment, fraud etc. It will improve the efficiency of finance sector as well as it leads to reduced human error. Many insurance businesses have large data quantities that are difficult to handle due to some semi-automated or use of error-prone manuals. Managing human and machine-generated data is tedious because it lacks a uniform Master Data Management (MDM) system. Myriad technologies drive it challenging to provide data accuracy, consequently, steadfast systems are directed toward wisdom that can be used. Thus, it shows the need for AI and ML keys to enhance productivity. AI and ML are changing insurance businesses by enhancing functioning efficiency, increasing fraud detection, personalizing customer interactions, predictive perspicuity through the processing of big data, and enhancing sales approaches [6]. These advances offer tailored

solutions, resulting in higher customer satisfaction by providing more immediate service and lessened costs. By improving customer experience, personalization, data processing, fraud detection, and operational effectiveness. AI and ML are improving the insurance industry. As revealed by Ageas UK's image identification for cutting expenses, auto claims, delays and automation expedites claim processing. An algorithm that enhances fraud detection is US Lemonade, the US's anti-fraud algorithm. AI-based chatbots and virtual assistance enhance Customer satisfaction. AI improves goal-oriented marketing, increasing industry profitability and inducing leads [7]. According to the researcher, e-finance is a fast-developing topic that needs prevention from financial disasters to reduce financial errors. It concentrates on vital topics like the growing prominence of FinTech, bankruptcy prediction, fraud detection, decision-making, and creditworthiness evaluation. ML models like Support Vector Machines (SVM), Random Forest (RF), and K-Nearest Neighbors (KNN) have proven to be very predictive in the field of finance. It shows how AI is being used in finance. The work presented offers a complete study of AI's revolutionary impact on digital banking. It also spotlights the possible current and future developments [8]. The author [9] compares that how AGI is different from ANI and ASI. He discusses about the methods to achieve AGI which include human brain emulation and AIXI (a theoretical model). The paper analyzes the requirement and feasibility of each method based upon technologies and finds that integrated cognitive architectures are the most appropriate option for achieving AGI. The author [10] highlight the ethical and social challenges in the transition from machine learning to AGI. The author [11] states that the prime focus of AGI is to replicate human cognitive abilities in various domain. Although the technologies like big-data and deep learning are in development process but the achievement of AGI is still uncertain. The research describes about the role of AI in finance sector. Like it automates operations, improve efficiency and reduce cost. It also offers personalized service. By analysing data in real time AI helps in detecting fraud and assess risks. By improving risk management, automating repetitive operations, streamlining financial procedures, boosting investment management, guaranteeing regulatory compliance, and facilitating improved decision-making, the incorporation of AI technology in corporate finance offers substantial benefits [12] [13]. The author [14] state about the different domain of AI like ANI-weak AI and AGI-strong AI. Further [15] describes about the difference of ANI and AGI by stating that ANI specializes in specific tasks and AGI can perform tasks in multiple domains as human-like level. AGI is more versatile as compare to ANI. The potential of AGI in Industry 4.0, Industry 5.0 and Society 5.0 is discussed by [16]. AGI has potential to revolutionize the whole sectors by improving productivity, creativity and customization. Although the number of obstacles is there for its implementation including ethics, safety, data privacy, trust etc. For appropriate development of AGI a multidisciplinary strategy which include government, academia and civil society is needed. In China, the author [17] examines the alleviating impacts of digital inclusive finance on the financing restrictions encountered by small and medium enterprises

(SMEs). It implements a statistical technique in a two-fold fixed effect model. It is responsible for data collection from individuals and firms and considers both i.e. time-specific and entity-specific effects. This model helps to reduce the constraints in digital inclusive finance. It also underlines the different characteristics of this alleviation such as regional mismatches, domain, and attributes in traditional financial services. The work finalizes that digital inclusive finance improves SMEs' inner funding origins by declining financing costs and managing leverage levels. To assess the credibility of AI in finance, the author introduces a cluster of integrated metrics named as SAFE stands for (Sustainability, Accuracy, Fairness, Explainability). It employs two statistical techniques Lorenz curve and Lorenz Zonoids. The work spotlights the limitations of ML in real-time d, notably concerning extreme data events and the demand for vital metrics. The author [18] expand earlier work to develop metrics. The SAFE framework has outperformed traditional metrics as per the practical demonstration using bitcoin price data. The suggested metrics seek to help stakeholders, financial authorities as well as asset management firms by delivering reliable evaluations of AI methods in finance, eventually improving conviction in AI applications. The author [19] examines the role of AI in improving access to digital finance within the inclusive financial system. The paper focuses on the significant benefits of employing robo advisor, while also discussing the potential risks posed by AI like market manipulation and system risks. Employing automated services will restrict the high commission charges thus lowering the costs and increasing accessibility for moderate savers. The research emphasizes the importance of a robust legal and regulatory framework that prioritizes market safety, consumer protection, and market integrity while promoting financial inclusion. The research work also highlights the requirement of prudent AI that strikes a balance between the rights of individual privacy and regulatory. It concerns the possibility of RegTech where AI is the regulatory technology. Sustainability, resilience and human-centric are the foundation of Industry 5.0 discussed by the author [20]. These three points help in creating a balanced industrial environment that incorporates state-of-the-art technologies with social and environmental stewardship. The employment of AI and ML in digital finance delivers improved efficiency [21], enhanced risk management, improved customer experience, and notable cost savings. It allows organizations to concentrate on strategic missions, stimulating invention in business pinnacles. Also increases the customer satisfaction by streamlining operations. To fight against monetary cybercrime via effectual peculiarity detection, automatic feature extraction, and real-time analytics can be enhanced through deep learning. As per [22] it processes enormous datasets, facilitating organizations to pinpoint deceitful stirs promptly and accurately. The author [23] discusses improved productivity and sustainability in manufacturing by incorporating human intelligence with robots. The focus is on human-robot collaboration, environmental sustainability, and the formation of unique roles like Chief Robotics Officer. The authors [24] [25] discusses the losses for users and institutions caused due to credit card fraud that significantly impacts the financial sector. The various challenges related to data are also focused such as

limited public data, high false alarm rates, growing fraud tactics, class imbalance, etc. It scours deep learning strategies compared to traditional algorithms for showing superior performance, and fraud detection, indicating real-world potential on three financial datasets. The author in [26] analyzes the influence of AI on cybersecurity, it examines the nine-banking data in Qatar's banking sector, emphasizing AI's role in improving security, challenges in enactment, potential hazards from AI mishandling, and susceptibilities in AI instruments. It highlights the demand for a competent workforce and regulatory obedience. AGI analysis applies myriad cognitive architectures however their underlying operational likenesses suggest the potential of a unified software framework, enabling easier implementation, analysis, and comparison. Developing such a framework could accelerate AGI's progress through code reuse and standardization [27] [28] [29].

III. PROPOSED METHODOLOGY

The main key features of industry 5.0 are shown in Fig. 1.

1) *Human centric approach*: Human demands and interests are central to the production process in an industry that is human-centric. Industry 5.0 asks what technology can do for workers rather than what workers can achieve with modern technology.

2) *Sustainability goal*: By creating circular economy procedures, a sustainable industry assists companies in lessening their environmental effect. Reducing waste, energy use and greenhouse gas emissions, as well as preventing the depletion and deterioration of natural resources, are other sustainability changes.

3) *Resilience and adaptability*: A resilient industry has a high level of resilience in its industrial production. It can support vital infrastructure during emergencies and is well-prepared for outages.

4) *Integration of advanced technologies*: Emerging of new technologies like AI, IoT, Blockchain are one of the major key features in Industry 5.0. Lots of new technology should be able to collaborate to achieve the theme of Industry 5.0 [30] [31].

A. Theoretical Foundation

For any new technology, service, or business to be adopted, it is critical to comprehend the culture. Because culture is multifaceted, there are many different meanings for it [32]. Numerous important people made contributions to cultural theory. "The collective mental programming that sets one group of people apart from another" is how Greek philosopher Hofstede defines culture. It has been established through research that culture affects how people adopt new or emerging technology. The culture has an impact on how new technologies are adopted. In order to explore the field of information theory, Hofstede proposed a theory. The power distance index, collectivism vs. individualism, uncertainty avoidance index, masculinity vs. femininity, and long-term vs. short-term are the five national cultural variables that form the basis of the Hofstede's theory [33] [34] [35]. While examining the adoption of technology, the author provided research on

the significance of culture. The author claims that people's attitudes and perceptions of different technology are influenced by their culture [36]. It follows that the acceptance of a new, creative autonomous decision-making system depends on the inclusion of cultural factors. Among the five culture-dimensions three-culture dimension is used in the investigation. Fig. 2 shows the conceptual framework based on the proposed hypothesis.

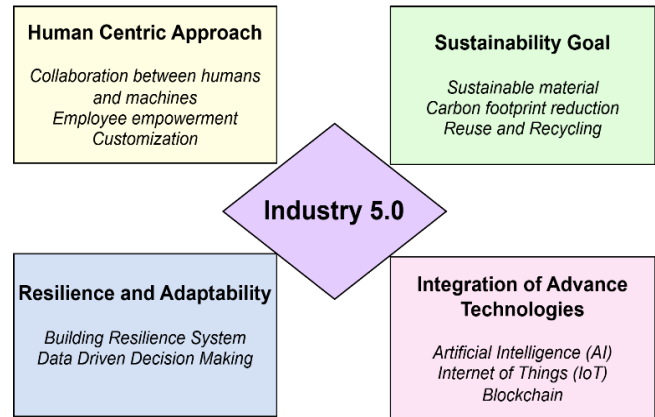


Fig. 1. Key components of industry 5.0.

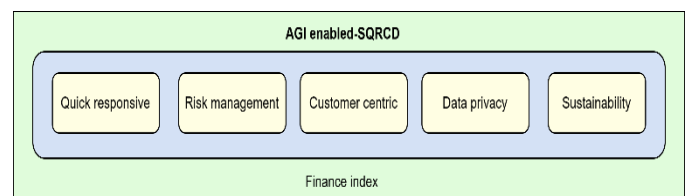


Fig. 2. Conceptual framework.

B. Conceptual Framework and Hypothesis Development

The variable quick responsive, risk management, customer centric, data privacy and sustainability influence the attitude of finance index towards the acceptance of an AGI enabled-SQRCD system. Hofstede's cultural variables power distance index, collectivism-individualism and uncertainty-avoidance moderate these relations. Table I shows the list of survey variable and Table II shows the abbreviation of the variables.

C. Hypothesis Proposed for Finance Index

Fig. 3 shows the conceptual detail framework based on the proposed hypothesis for finance prospective.

H_{qr} Quick responsive: It refers to the response time. The term quick responsive H_{qr} influence positively to the attitude of the finance index towards the acceptance of an AGI enabled-SQRCD.

H_{rm} Risk management: It refers to the capability of risk management. The term risk management H_{rm} influence positively to the attitude of the finance index towards the acceptance of an AGI enabled-SQRCD.

H_{cc} Customer centric: It refers to the process which focus about customer. The term customer centric H_{cc} influence positively to the attitude of the finance index towards the acceptance of an AGI enabled-SQRCD.

TABLE I. SURVEY VARIABLES

Variables	Items
Quick responsive	Finance index should be able to find an AGI enabled-SQRCD system where system is quick responsive while accessing service/product. Finance index should be able to find an AGI enabled-SQRCD system where system is quick responsive while dealing with customers queries.
Risk management	Finance index should be able to find an AGI enabled-SQRCD where system where risk can be managed specially while funding.
Customer centric	Finance index should be able to find an AGI enabled-SQRCD where system is design more in a customer centric way rather than a product centric way.
Data privacy	Finance index should be able to find an AGI enabled-SQRCD system where system where system is able to maintain privacy of data.
Sustainability	Finance index should be able to find an AGI enabled-SQRCD system where the system is able to take challenge to simulate sustainable development.
Power distance index	People who belongs to different income group should be able to find an AGI enabled-SQRCD system
Collectivism	People who belong to collectivist culture will more influence to adopt an AGI enabled-SQRCD system. Individual should be able to find an AGI enabled-SQRCD system
Uncertainty avoidance	People should be able to find an AGI enabled-SQRCD system where instructions are very clear and detailed what to do. People should be able to find an AGI enabled-SQRCD system where instructions and procedures are followed strictly.

TABLE II. ABBREVIATION OF VARIABLES

Variables	Abbreviations
Quick responsive	H_{qr}
Risk management	H_{rm}
Customer centric	H_{cc}
Data privacy	H_{dp}
Sustainability	H_{sn}
Power distance index	H_{pdin}
Collectivism	H_{col}
Uncertainty avoidance	H_{uav}
Attitude	H_{attd}

H_{dp} Data privacy: It refers to the capability of the process where data privacy is one of the important factors. The term data privacy H_{dp} influence positively to the attitude of finance index towards the acceptance of an AGI enabled-SQRCD.

H_{sn} Sustainability: Financial institute has to play very important role to address sustainable development. The term sustainability H_{sn} influence positively to the attitude of the finance index towards the acceptance of an AGI enabled-SQRCD.

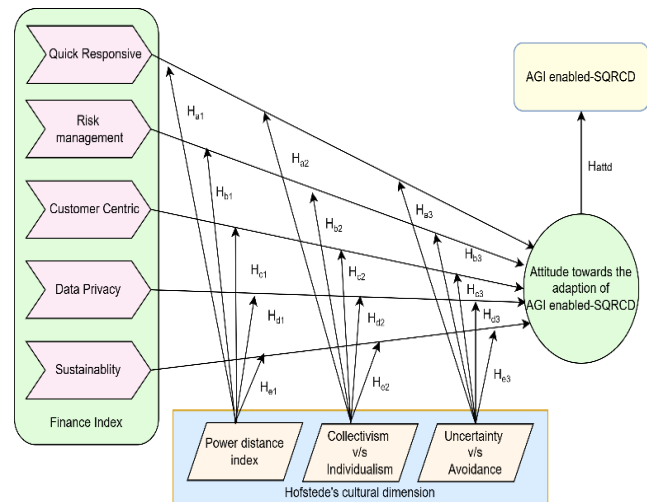


Fig. 3. Conceptual framework for finance index.

Table III shows the hypothesis created for the three constructs taken from the Hofstede's Cultural Dimension.

Fig. 4 shows the flowchart of Customer-Centric. It outlines a structured approach to enhancing customer experience and satisfaction within a financial inclusion system. It starts by identifying target customer segments, focusing on their unique needs and preferences.

TABLE III. HYPOTHESIS CREATED FOR HOFSTEDE’S CULTURAL DIMENSION

Hofstede’s Cultural Dimension variables	Items	Description
H _{pdin}	H _{a1}	The relationship between the quick responsive and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in the society belongs to high/low both power distance index.
	H _{b1}	The relationship between the risk management and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in the society belongs to high/low both power distance index.
	H _{c1}	The relationship between the customer centric process and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in the society belongs to high/low both power distance index.
	H _{d1}	The relationship between the term data privacy and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in the society belongs to high/low both power distance index.
	H _{e1}	The relationship between the term sustainability and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in the society belongs to high/low both power distance index.
H _{col}	H _{a2}	The relationship between the quick responsive and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in both collectivism and individualism cultural.
	H _{b2}	The relationship between the risk management and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in both collectivism and individualism cultural.
	H _{c2}	The relationship between the customer centric process and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in both collectivism and individualism cultural.
	H _{d2}	The relationship between the term data privacy and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in both collectivism and individualism cultural.
	H _{e2}	The relationship between the term sustainability and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in both collectivism and individualism cultural.
H _{uav}	H _{a3}	The relationship between quick responsive and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in uncertainty avoidance cultural.
	H _{b3}	The relationship between risk management and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in uncertainty avoidance cultural.
	H _{c3}	The relationship between the customer centric process and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in uncertainty avoidance cultural.
	H _{d3}	The relationship between the term data privacy and the attitude towards the adaption of an AGI enabled-SQRCD system is stronger in uncertainty avoidance cultural.
	H _{e3}	The relationship between the term sustainability and the attitude towards the adaption of an AGI enabled SQRCD system is stronger in uncertainty avoidance cultural.

The next step involves collecting information through surveys and feedback mechanisms to assess customer expectations. Based on this information, personalized financial products and services are developed to ensure alignment with customer requirements. The chart emphasizes the importance of leveraging technology to provide tailored communication and support. The system incorporates regular measurement of customer satisfaction and service effectiveness, allowing for data-driven improvements using feedback process. Finally, the flow chart highlights the iterative nature of the process, ensuring that customer feedback is consistently integrated to refine offerings, enhance relationships, and foster loyalty, ultimately creating a responsive and adaptive financial service environment.

Fig. 5 shows the flowchart of sustainability-focused financial inclusion system. It outlines a structured approach to

enhancing access to financial services for underserved populations while promoting environmental and social responsibility. It begins by identifying the target demographic and assessing their specific financial needs through community engagement. Next, inclusive financial products are developed, leveraging technology for accessibility and personalized education. Partnerships with local organizations are established to build trust and facilitate outreach. Financial literacy programs empower customers with knowledge, while engagement strategies foster strong relationships. The system emphasizes measuring impact through customer satisfaction metrics, allowing for continuous improvement based on feedback. Additionally, it promotes sustainable practices within financial offerings. The iterative process ensures that the system evolves to meet changing customer needs, ultimately creating a comprehensive framework that empowers individuals and communities while supporting sustainable development goals.

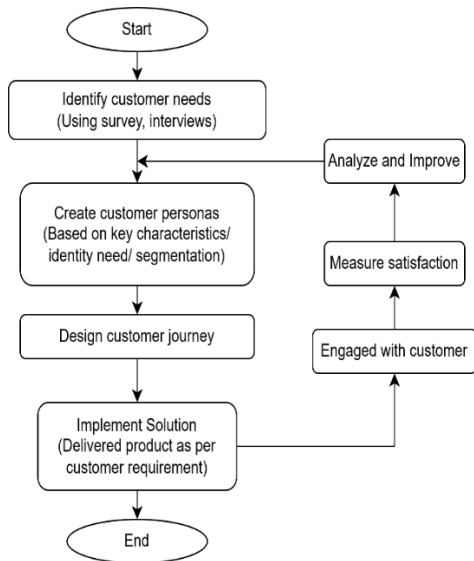


Fig. 4. Flow-chart customer centric focused intelligence financial inclusion system.

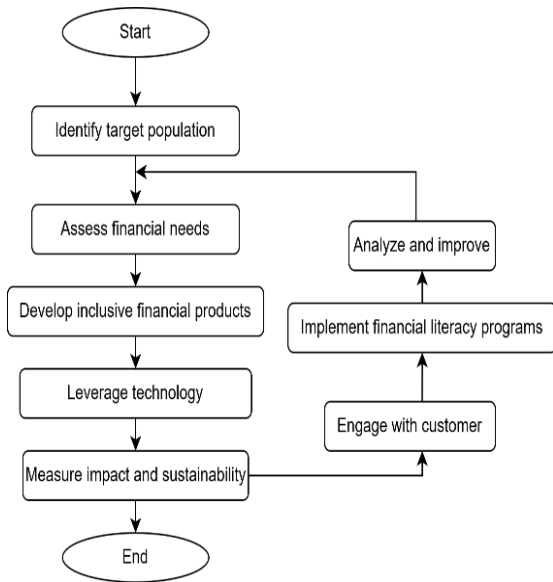


Fig. 5. Flow-chart sustainability focused intelligence financial inclusion system.

IV. RESULT ANALYSIS

Using a quantitative research approach and a purposive selection technique, 630 financial service providers from various socio-economic backgrounds were selected for the sample. Table IV shows the demographic profile. Specifically, the sample design focused on people who had previously engaged with AI algorithms. Participants were invited to participate using online questionnaires. Five-point Likert scale is used for the value of survey variables, from strongly disagree to strongly agree. 1 is used as strongly disagree and 5 is used as strongly agree. This provided the data needed for a thorough analysis and understanding of the correlation between the constructs and the AGI enabled-SRQCD and also the adaption of AGI enabled-SQRCD.

TABLE IV. DEMOGRAPHIC PROFILE

Type of Bank	
Public	13
Private	21
Foreign	44
Small finance	12
Total Number of Respondents (630)	
Public	91
Private	147
Foreign	308
Small finance	84

Before moving towards the thoroughly analysis the validation of each item's reliability is important. There are total five items are listed in conceptual model which are independent and one is dependent. Three items are taken from Hofstede's cultural dimension as moderators. Descriptive analysis is done to find a true picture of data involved in the study. Descriptive statistics of variable used in survey for study is shown in Table V. The graphs of mean, median, mode and std. deviation are shown in Fig. 6.

TABLE V. DESCRIPTIVE STATISTICS

	Mean	Median	Mode	Std. Deviation	Min	Max
H _{qr}	4.253174603	4.25	4.5	0.54084908	1.25	5
H _{rm}	3.974206349	3.97	4.25	0.506348179	1.5	4.75
H _{cc}	3.929365079	4.25	4.5	0.730313157	1.25	5
H _{dp}	4.180952381	4.5	4.5	0.561052311	1.25	5
H _{sn}	3.986714286	4	4	0.524437011	1.33	5
H _{pdin}	4.104666667	4	4	0.582995499	1.67	5
H _{col}	4.098111111	4	4	0.510755001	1.33	5
H _{uav}	4.043253968	4.25	4.25	0.613032585	1.5	5
H _{attd}	4.253174603	4.25	4.5	0.54084908	1.25	5

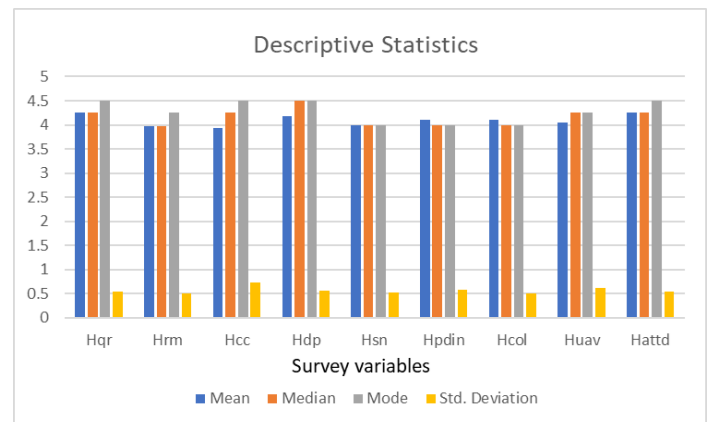


Fig. 6. Descriptive statistics.

Factor loading of each item are shown in Table VI. The value of factor loading exceed 0.7 is maintaining the guideline.

TABLE VI. FACTOR LOADING

Variable	Items	Factor Loadings
H _{qr}	H _{qr1}	0.866
	H _{qr2}	0.823
	H _{qr3}	0.777
	H _{qr4}	0.701
H _{rm}	H _{rm1}	0.711
	H _{rm2}	0.753
	H _{rm3}	0.84
	H _{rm4}	0.781
H _{cc}	H _{cc1}	0.735
	H _{cc2}	0.849
	H _{cc3}	0.842
	H _{cc4}	0.766
H _{dp}	H _{dp1}	0.76
	H _{dp2}	0.804
	H _{dp3}	0.846
	H _{dp4}	0.738
H _{sn}	H _{sn1}	0.781
	H _{sn2}	0.805
	H _{sn3}	0.852
	H _{sn4}	0.71
H _{pdin}	H _{pdin1}	0.719
	H _{pdin2}	0.82
	H _{pdin3}	0.838
	H _{pdin4}	0.711
H _{col}	H _{col1}	0.754
	H _{col2}	0.809
	H _{col3}	0.855
	H _{col4}	0.732
H _{uav}	H _{uav1}	0.822
	H _{uav2}	0.843
	H _{uav3}	0.88
	H _{uav4}	0.725
H _{attd}	H _{attd1}	0.738

H _{attd2}	0.803
H _{attd3}	0.854
H _{attd4}	0.728

Cronbach's Alpha is calculated for each variable used in study and shown in Fig. 7. If the value of Cronbach's Alpha is found greater than 0.7 state that variable is reliable and can be used for further analysis.

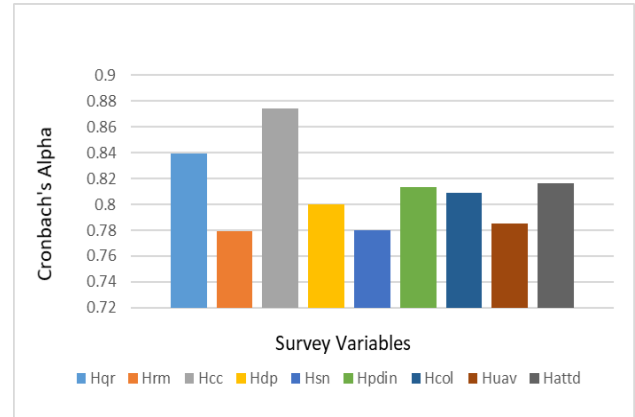


Fig. 7. Cronbach's alpha.

As shown in Table VII the value of all the variable exceed the cut off value indicate that the variables are reliable.

TABLE VII. CRONBACH'S ALPHA

Variable	Cronbach's Alpha
H _{qr}	0.839
H _{rm}	0.779
H _{cc}	0.874
H _{dp}	0.8
H _{sn}	0.78
H _{pdin}	0.813
H _{col}	0.809
H _{uav}	0.785
H _{attd}	0.816

Composite reliability of all used variables is shown in Fig. 8.

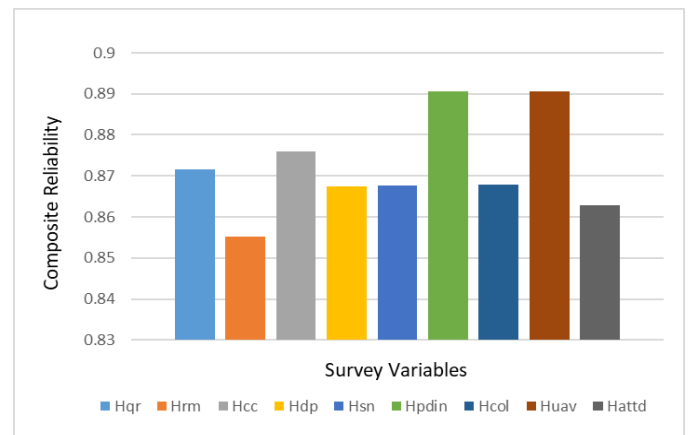


Fig. 8. Composite reliability.

Table VIII shows that the composite reliability also exceeds 0.7 states that items and variables are reliable. The Cronbach's alpha value and composite reliability exceed 0.7 confirm the guideline made by the authors [37].

TABLE VIII. COMPOSITE RELIABILITY

Variable	CR
H _{qr}	0.871597798
H _{rm}	0.855163124
H _{cc}	0.875925089
H _{dp}	0.867347575
H _{sn}	0.867622012
H _{pdin}	0.89058948
H _{col}	0.867908711
H _{uav}	0.89058948
H _{attd}	0.862774646

Average Variance Extracted (AVE) of the study variables are shown in Fig. 9.

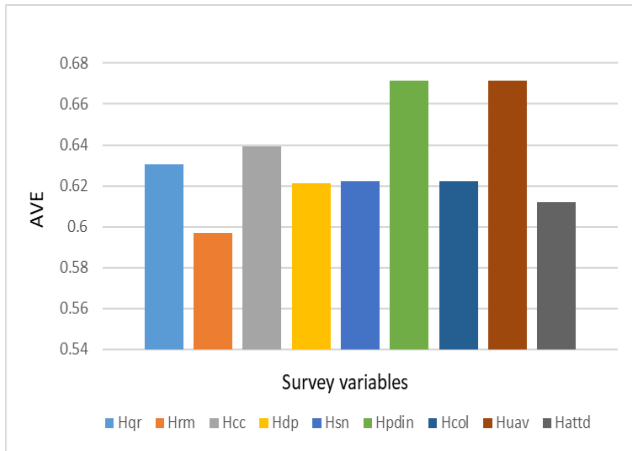


Fig. 9. Average variance extracted (AVE).

TABLE IX. AVERAGE VARIANCE EXTRACTED

Variable	AVE
H _{qr}	0.63060375
H _{rm}	0.59702275
H _{cc}	0.6391865
H _{dp}	0.621094
H _{sn}	0.6219975
H _{pdin}	0.6715895
H _{col}	0.6224615
H _{uav}	0.6715895
H _{attd}	0.61218825

Discriminant table is shown in Table X. The inter construct correlation values are less than the square root value of the Average Variance Extracted values of the respective variables shown in Table IX, thus it validates discriminant validity.

TABLE X. DISCRIMINANT TABLE

	H _{qr}	H _{rm}	H _{cc}	H _{dp}	H _{sn}	H _{pdin}	H _{col}	H _{uav}	H _{attd}
H _{qr}	.794								
H _{rm}	.71	.772							
H _{cc}	.60	.63	.799						
H _{dp}	.71	.68	.59	.788					
H _{sn}	.35	.34	.38	.72	.789				
H _{pdin}	.70	.69	.51	.58	.44	.774			
H _{col}	.55	.58	.62	.34	.56	.34	.788		
H _{uav}	.41	.50	.71	.55	.34	.56	.26	.810	
H _{attd}	.51	.56	.52	.63	.45	.59	.60	.35	.782

Initially, direct relationships tested between H_{qr}, H_{rm}, H_{cc}, H_{dp}, H_{sn} and H_{attd}. H_{qr} ($\beta = 0.43, p < 0.001$), H_{rm} ($\beta = 0.37, p < 0.001$), H_{cc} ($\beta = 0.65, p < 0.001$), H_{dp} ($\beta = 0.36, p < 0.001$), H_{sn} ($\beta = 0.68, p < 0.001$), H_{attd} ($\beta = 0.78, p < 0.001$). It states that the hypothesis H_{qr}, H_{rm}, H_{cc}, H_{dp}, H_{sn} and H_{attd} receives the support. The statistical analysis done for the examination provide the support for all six direct relations. Secondly moderator's H_{pdin}, H_{col} and H_{uav} influence checked on the relationship between H_{qr}, H_{rm}, H_{cc}, H_{dp}, H_{sn} and H_{attd}. The effects of H_{qr} X H_{pdin}, H_{rm} X H_{pdin}, H_{cc} X H_{pdin}, H_{dp} X H_{pdin}, H_{sn} X H_{pdin}, H_{qr} X H_{col}, H_{rm} X H_{col}, H_{cc} X H_{col}, H_{dp} X H_{col}, H_{sn} X H_{col}, H_{qr} X H_{uav}, H_{rm} X H_{uav}, H_{cc} X H_{uav}, H_{dp} X H_{uav}, H_{sn} X H_{uav}. H_{a1}, H_{b1}, H_{c1}, H_{d1} and H_{e1} examined with H_{pdin} as moderator. H_{a2}, H_{b2}, H_{c2}, H_{d2} and H_{e2} examined as H_{col} as a moderator. H_{a3}, H_{b3}, H_{c3}, H_{d3} and H_{e3} examined as H_{uav} as a moderator. The effect of H_{pdin} and H_{col} is Not Significant on above mention relation. The effect of H_{uav} is all were significant and supports the hypothesis.

V. FUTURE PERSPECTIVE

The future perspective of SQRC (Sustainability, Quality, Resilience, Customer-centricity, and Digitalization) within the setting of building feasible and customer-centric DFIS for the Industry 5.0 era speaks to a major move towards making frameworks that coordinated progressed innovation, human-centric solutions, and sustainability goals. Sustainability isn't fair and natural concern but a foundational guideline for future DFIS. Within the Industry 5.0 era, which emphasizes the integration of people and machines, DFIS must consolidate eco-friendly practices, vitality effectiveness, and economical trade models. Quality affirmation will utilize AI-driven arrangements that automate testing, approval, and compliance to diminish human errors. As cyber dangers advance, securing DFIS with progressed encryption, multi-factor confirmation, and AI-driven extortion avoidance instruments is significant. Combining human imagination with machine accuracy will empower DFIS to offer versatile financial items and administrations custom-made to particular needs.

VI. CONCLUSION

The study proposed the direct hypotheses to analyze the adoption of an AGI enabled-SQRCD system among respondent belongs to financial service provider institute. Artificial intelligence has gained a very important place in the field of finance sector. It has been seen that that survey variables (i.e. quick responsive, risk management, customer centric, sustainability and data privacy) has positive association with the attitude of adoption of an AGI enabled-SQRCD system. Studies do not always same as actual behaviour so future work can be done to see the actual behaviour to see the adoption of AGI enabled-SQRCD system.

REFERENCES

- [1] Tewari, Niharika. "Artificial Intelligence in Finance and Industry: Opportunities and Challenges." *Decision Strategies and Artificial Intelligence Navigating the Business Landscape*. <https://doi.org/10.59646/edbookc5/009> (2023).
- [2] Ahmadi, Sina. "A comprehensive study on integration of big data and AI in financial industry and its effect on present and future opportunities." *International Journal of Current Science Research and Review* 7, no. 01 (2024): 66-74.
- [3] Irfan, Mohammad, Mohammed Elmogy, and Shaker El-Sappagh, eds. *The impact of AI innovation on financial sectors in the era of industry 5.0*. IGI Global, 2023.
- [4] Kotiyal, Bina, Heman Pathak, and Nipur Singh. "Debunking multi-lingual social media posts using deep learning." *International Journal of Information Technology* 15, no. 5 (2023): 2569-2581.
- [5] Li, Yingbo, and Yucong Duan. "The Wisdom of Artificial General Intelligence: Experiments with GPT-4 for DIKWP." *arXiv preprint* (2023).
- [6] Indriasari, Elisa, Ford Lumban Gaol, and Tokuro Matsuo. "Digital banking transformation: Application of artificial intelligence and big data analytics for leveraging customer experience in the Indonesia banking sector." In *2019 8th International Congress on Advanced Applied Informatics (IIAI-AAI)*, pp. 863-868. IEEE, 2019.
- [7] Prajapati, Mr Nitin. "Influence of AI and machine learning in insurance sector." *Bournemouth University Department of Computing Science, MSc. Data Science and AI 1* (2022).
- [8] Najem, Rihab, Meryem Fakhouri Amr, Ayoub Bahnasse, and Mohamed Talea. "Artificial intelligence for digital finance, axes and techniques." *Procedia Computer Science* 203 (2022): 633-638.
- [9] Rathi, Soumil. "Approaches to Artificial General Intelligence: An Analysis." *arXiv preprint arXiv:2202.03153* (2022).
- [10] Obaid, Omar Ibrahim. "From machine learning to artificial general intelligence: A roadmap and implications." *Mesopotamian Journal of Big Data* 2023 (2023): 81-91.
- [11] Al-Baity, Heyam H. "The artificial intelligence revolution in digital finance in Saudi Arabia: a comprehensive review and proposed framework." *Sustainability* 15, no. 18 (2023): 13725.
- [12] Rane, Nitin Liladhar, Saurabh P. Choudhary, and Jayesh Rane. "Artificial Intelligence-driven corporate finance: enhancing efficiency and decision-making through machine learning, natural language processing, and robotic process automation in corporate governance and sustainability." *Studies in Economics and Business Relations* 5, no. 2 (2024): 1-22.
- [13] Prasanth, Anupama, John Vadakkan Densy, Priyanka Surendran, and Thomas Bindhya. "Role of artificial intelligence and business decision making." *International Journal of Advanced Computer Science and Applications* 14, no. 6 (2023).
- [14] Latif, Ehsan, Gengchen Mai, Matthew Nyaaba, Xuansheng Wu, Ninghao Liu, Guoyu Lu, Sheng Li, Tianming Liu, and Xiaoming Zhai. "AGI: Artificial general intelligence for education." *arXiv preprint arXiv:2304.12479* (2023).
- [15] Banitaan, Shadi, Ghaith Al-refai, Sattam Almatarnah, and Hebah Alquran. "A review on artificial intelligence in the context of industry 4.0." *International Journal of Advanced Computer Science and Applications* 14, no. 2 (2023).
- [16] Rane, J., S. K. Mallick, O. Kaya, and N. L. Rane. "Artificial general intelligence in industry 4.0, 5.0, and society 5.0: Applications, opportunities, challenges, and future direction." *Future Research Opportunities for Artificial Intelligence in Industry 4.0 and 5* (2024): 2.
- [17] Bu, Y., Du, X., Wang, Y., Liu, S., Tang, M., & Li, H. (2024). Digital inclusive finance: A lever for SME financing?. *International Review of Financial Analysis*, 93, 103115.
- [18] Giudici, P., & Raffinetti, E. (2023). SAFE Artificial Intelligence in finance. *Finance Research Letters*, 56, 104088.
- [19] Lee, J. (2020). Access to finance for artificial intelligence regulation in the financial services industry. *European Business Organization Law Review*, 21(4), 731-757.
- [20] Rame, Rame, Purwanto Purwanto, and Sudarno Sudarno. "Industry 5.0 and sustainability: An overview of emerging trends and challenges for a green future." *Innovation and Green Development* 3, no. 4 (2024): 100173.
- [21] Zheng, Xiao-lin, Meng-ying Zhu, Qi-bing Li, Chao-chao Chen, and Yan-chao Tan. "FinBrain: when finance meets AI 2.0." *Frontiers of Information Technology & Electronic Engineering* 20, no. 7 (2019): 914-924.
- [22] Nicholls, Jack, Aditya Kuppa, and Nhien-An Le-Khac. "Financial cybercrime: A comprehensive survey of deep learning approaches to tackle the evolving financial crime landscape." *Ieee Access* 9 (2021): 163965-163986.
- [23] Nahavandi, Saeid. "Industry 5.0—A human-centric solution." *Sustainability* 11, no. 16 (2019): 4371.
- [24] Nguyen, Thanh Thi, Hammad Tahir, Mohamed Abdelrazek, and Ali Babar. "Deep learning methods for credit card fraud detection." *arXiv preprint arXiv:2012.03754* (2020).
- [25] AL-Dosari, Khalifa, Noora Fetais, and Murat Kucukvar. "Artificial intelligence and cyber defense system for banking industry: A qualitative study of AI applications and challenges." *Cybernetics and systems* 55, no. 2 (2024): 302-330.
- [26] Alenzi, Hala Z., and Nojood O. Aljehane. "Fraud detection in credit cards using logistic regression." *International Journal of Advanced Computer Science and Applications* 11, no. 12 (2020).
- [27] Snaider, Javier, Ryan McCall, and Stan Franklin. "The LIDA framework as a general tool for AGI." In *Artificial General Intelligence: 4th International Conference, AGI 2011, Mountain View, CA, USA, August 3-6, 2011. Proceedings* 4, pp. 133-142. Springer Berlin Heidelberg, 2011.
- [28] Bubeck, Sébastien, Varun Chandrasekaran, Ronen Eldan, Johannes Gehrke, Eric Horvitz, Ece Kamar, Peter Lee et al. "Sparks of artificial intelligence: Early experiments with gpt-4." *arXiv preprint arXiv:2303.12712* (2023).
- [29] Dou, Fei, Jin Ye, Geng Yuan, Qin Lu, Wei Niu, Haijian Sun, Le Guan et al. "Towards artificial general intelligence (agi) in the internet of things (iot): Opportunities and challenges." *arXiv preprint arXiv:2309.07438* (2023).
- [30] Mamoona, Humayun. "Industrial Revolution 5.0 and the Role of Cutting Edge Technologies." *International Journal of Advanced Computer Science and Applications (IJACSA)* 12 (2021).
- [31] Thatikonda, Ramya, Jainath Ponnala, Dileep Kumar Yendluri, M. Kempanna, Reshmi Tatikonda, and A. Bhuvanesh. "The Impact of Blockchain and AI in the Finance Industry." In *2023 International Conference on Computational Intelligence, Networks and Security (ICCINS)*, pp. 1-6. IEEE, 2023.
- [32] Dash, Bibhu, Pawankumar Sharma, and Swati Swayamsiddha. "Organizational digital transformations and the importance of assessing theoretical frameworks such as TAM, TTF, and UTAUT: A review." *International Journal of Advanced Computer Science and Applications* 14, no. 2 (2023).
- [33] Hofstede, Geert. "Culture and organizations." *International studies of management & organization* 10, no. 4 (1980): 15-41.

- [34] Bokhari, Syed Asad Abbas, and Seunghwan Myeong. "Ai applications in smart city employing technology adoption model: Hofstede's cultural perspective." In 2023 2nd International Conference for Innovation in Technology (INOCON), pp. 1-6. IEEE, 2023.
- [35] Jan, Jeffy, Khaled A. Alshare, and Peggy L. Lane. "Hofstede's cultural dimensions in technology acceptance models: a meta-analysis." *Universal Access in the Information Society* 23, no. 2 (2024): 717-741.
- [36] Rawat, Ruchira, Sachin Sharma, and Himanshu Rai Goyal. "Hofstede's Cultural Dimension Driven Artificial Narrow Intelligence iDFIS for Industry 5.0 Empowered Digital Society." *Recent Patents on Engineering* (2024).
- [37] Fornell, Claes, and David F. Larcker. "Evaluating structural equation models with unobservable variables and measurement error." *Journal of marketing research* 18, no. 1 (1981): 39-50.